ABSTRACT OF THE DISCLOSURE

A new sequence, hGR 1Ap/e, has been isolated from human DNA upstream from the previously known 2.7 kbp human GR promoter region. This new sequence was found to contain a new promoter (the 1A GR promoter) and a new untranslated exon sequence (GR exon 1A) for the human glucocorticoid receptor protein (Hgr). Alternative splicing produces three different hGR 1A-containing transcripts, 1A1, 1A2, and 1A3. Exon 1A3-containing GR transcripts appear to be restricted to blood cell cancers and to the human brain. Glucocorticoid hormone treatment caused an up-regulation of exon 1A3-containing GR transcripts in T-lymphoblast cells, and a down-regulation of exon 1A3-containing transcripts in B-lymphoblast cells. Thus detection of exon 1A3-containing transcripts can be used for the diagnosis of patients with blood cell cancers, including T-cell acute lymphoblastic leukemia (ALL), and to identify patients that would benefit from glucocorticoid hormone treatment.